

Impact of environmental (biotic and abiotic) stresses on crop production

Subject Name:

Impact of environmental (biotic and abiotic) stresses on crops production

Course Type:

Lectures/case studies

Outline:

Interaction of plants with environmental factors is a key parameter of their development and thus of yield and performance of crop systems. This teaching unit focuses on the impact of abiotic (temperature, light, water and nutrient availability) and biotic (phytopathogenic or symbiotic microorganisms) factors with crop physiology and productivity. Plant adaptation strategies and defense mechanisms will be presented. Finally, production of mycotoxins by filamentous fungal phytopathogenic species during plant infection will be studied as a response to plant defense mechanisms.

Semester Schedule and Credit:

<u>Subject</u>	<u>Year</u>	<u>Semester</u>	<u>Day/Period</u>	<u>Credit</u>
Impact of environmental stresses on crops	2	Fall	12 x 2h	1.5

Location:

University of Bordeaux (UB)

Instructor Information

Prof. Eric Gomès (UB), Assistant-Prof. Gérard Barroso (UB), Assistant-Prof. Virginie Lauvergeat (UB)

General Instructional Objective (GIO):

Students will acquire fundamental knowledge relating to plant environment interactions and their consequences on crop production. They will have basic notions of the molecular and genetic bases of mechanisms ruling plant stress responses and adaptations.

Specific Behavioral Objectives (SBO):

- 1 . Students will be able to explain/describe the main effects of biotic and abiotic stresses on plant metabolism and development;
- 2 . Students will be able to explain/describe the main phenotypic traits to target for crop stress tolerance breeding;

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- 3 . Students will be able to explain/describe molecular characterization of phytopathogenic agents;
- 4 . Students will be able to use plant/microbe interaction knowledge to design sustainable alternative crop protection methods;

Course Overview/ Weekly Schedule:

Homework:

Scientific papers and case study reports, as assigned

Grading Method and Criteria:

Students are evaluated by their attendance, report assignments and terminal written and/or oral examination

Textbook/ Referenced Materials: No prescribed materials

Notes: None